

APQC's Response to the Federal Government's Call for Public Input about Innovation Measurement

[APQC](#), an international non-profit benchmarking and best practice research organization, supports the broader definition of innovation developed by the 21st Century Economy Advisory Committee.

Through this proposal we will offer meaningful input into categories three and four of the public notice. **Our contribution is intended to help the committee identify common measures that organizations use to evaluate their innovation efforts and find ways to close the “holes” in the current data collection system.**

In 2006, APQC joined IBM and other subject matter experts and advisors to research and develop a standard set of innovation measures. APQC produced a series of potential metrics and invited hundreds of organizations from around the world to comment on the metrics. Over 120 organizations across a diverse set of non-profit and for-profit industries chose to participate, and they evaluated the effectiveness of each metric in measuring innovation. Based on their input, APQC created a common set of innovation measures that can be used “for analysis at the industry, sector, national, and international levels” as requested in the public notice¹.

Now using the metric assessment, APQC through its [Open Standards Benchmarking CollaborativeSM](#) research is currently collecting data around these performance, process, and outcome measures through an **Open Innovation Research Study**². The research is being conducted in partnership with **IBM** and **Innosight** to capture and report on how organizations measure innovation and to develop benchmarks for measuring innovation.

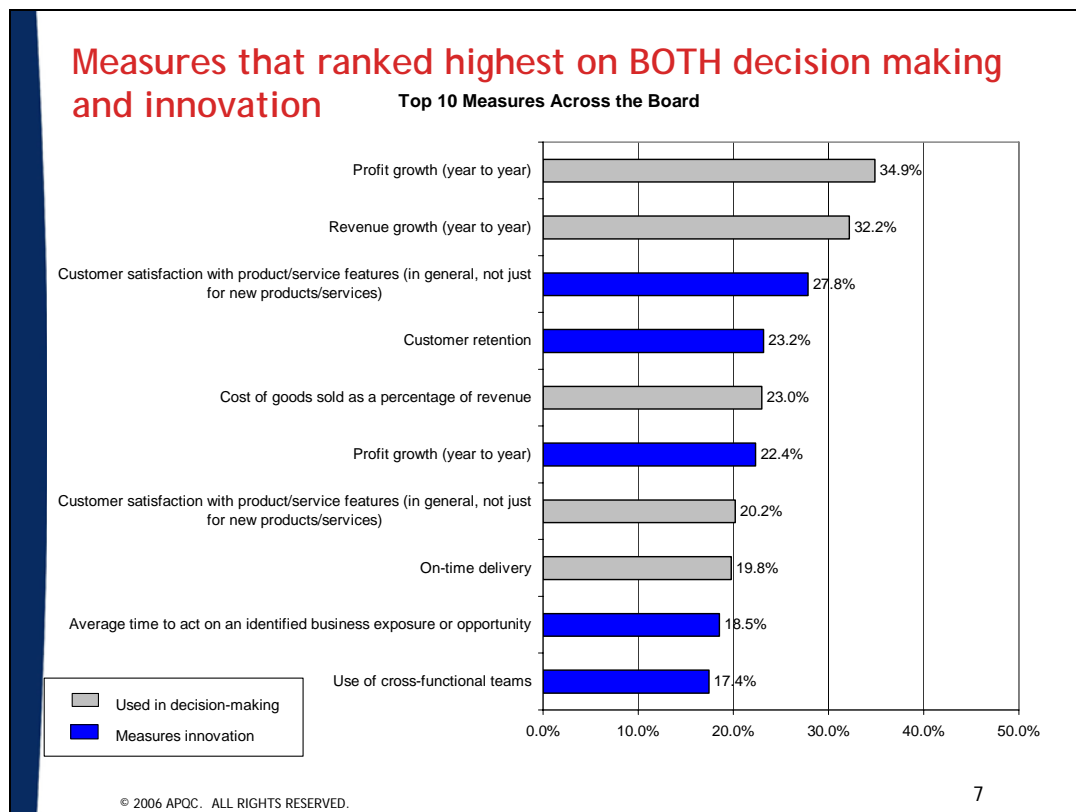
Evaluating Innovation Efforts

At the level of outcomes in the initial research, the measures that responding organizations said matter the most for decision making and innovation assessment are profit growth, revenue growth, and customer satisfaction. APQC also collected data on the most important measures for investment in new product and service development, operations, new business models, and innovation enablers.³

¹ The analysis can only be applied at specific levels if sufficient data exists at each level to make a statistically valid assessment.

² An overview of APQC and the OSBC research is included in the Addendum as “About APQC and the Open Standards Research”.

³ A comprehensive list of the initial measures tested in the Phase 1 research is included in the Addendums as “Innovation Metrics - Initial Measures Tested”.



What data is needed to differentiate innovative from non-innovative organizations?

Based on the measures identified in Phase 1, APQC, IBM, and Innosight are collecting data to determine the drivers and enablers of innovation. See www.apqc.org/Innovationhome for a sample of measures, a preview of the report participants receive at no charge, and a copy of the data collection instrument.

APQC and its partners are investigating the relationship of innovation behaviors, as evidenced by the survey results, and innovation outcomes. Findings are beginning to emerge from the first wave of data collection.

Investing in Products and Services

Organizations with higher revenue growth tend to accept new ideas quickly and are more flexible about assigning resources to work on new product/service development. Firms use the quantitative measures listed below to establish their level of commitment to research and development.

- Revenue growth normalized by R&D spend
- Average time to market for new products/services in days
- Average time to profitability/payback for new products/services in months
- Percentage of revenue from new products and/or services launched in the past year

New Business Models

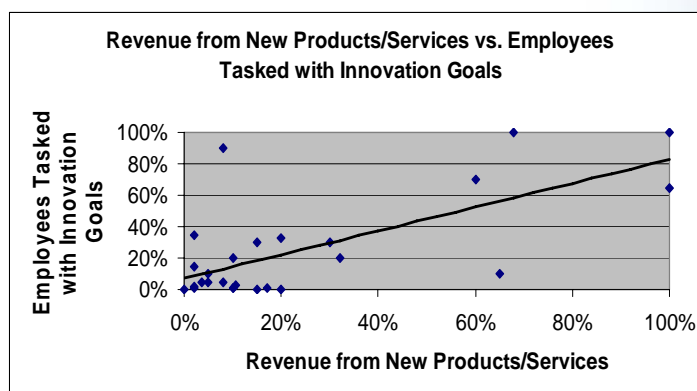
When looking at the success of new business models firms measure the following:

- Number of new business models launched in the past three years
- Percentage of revenue by fulfillment channels
- Customer retention rate

What are the most important measures of the underlying process of how innovation and productivity advances are initiated or stimulated?

Organizations that involve employees and customers in the innovation process see a higher percentage of revenue from new products.

Respondents reporting more revenue from new products/services tended to report more employees tasked with innovation goals



Staff and Customer Involvement

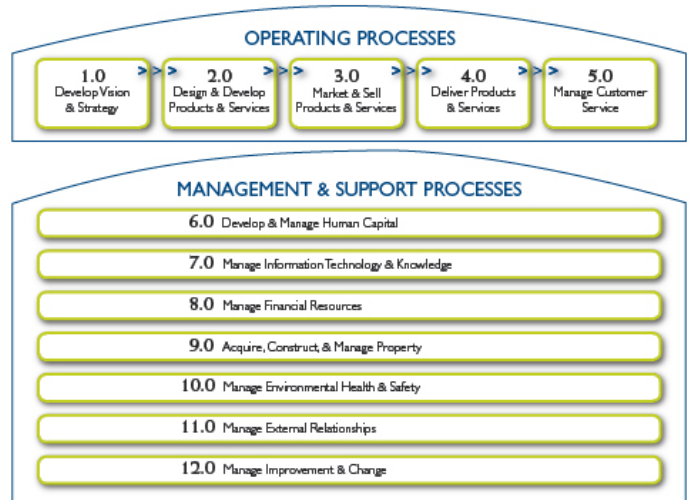
Innovative organizations involve staff and customers more in the innovation process. They are more likely to act fast and take new concepts and products to market. Key metrics used to understand how well an organization enables innovation are:

- Employment of cross-functional teams to resolve problems or perform specific tasks
- Collaboration practices
- Mobilization capabilities
- Evidence of an active innovation agenda
- Customer satisfaction

These are just a few of the measures that differentiate innovative from non-innovative organizations. For the sake of brevity, APQC's complete list of measures used in the current data collection can be found in the addendum to this document.⁴

Closing the "holes" in the Current Data Collection System

Few better understand the need to close the holes in current data collection systems than APQC. To address the issue head-on, in 2004, APQC became the steward of an initiative called the [Open Standards Benchmarking Collaborative™](#) (OSBC) research. APQC worked with a many organizations, including Booz Allen, IBM, Shell Oil and The World Bank to adopt a common taxonomy for business processes. This taxonomy is directly linked to APQC's [Process Classification Framework™](#) (PCF), and it links standard measures to processes common to all enterprises such as business strategy, financial management, and innovation. The supporting graphic provides a high level portrayal of the categories of the PCF. APQC then collects data around these common measures. APQC is steward of the data collection and analysis and houses the results in a confidential database that can be used for benchmarking, goal setting, and business cases. APQC looks at performance across multiple dimensions of people, process, and technology to examine cost, cycle time, process efficiency, and staff productivity. In innovation, the dimensions examined are product and service innovation, operational innovation, business model innovation, and innovation enablers.



The Process Classification Framework™ (PCF) was first developed by APQC and its member organizations in 1991. It is updated by a global advisory council of industry leaders. The PCF organizes operating and management processes into 12 enterprise-level categories, including process groups and more than 1,500 processes and

⁴ A comprehensive list of the metrics used in the data collection and calculation is included in the Addendums as "Innovation Metrics - Calculated in Current Data Collection".

associated activities. APQC uses the PCF to identify holes in data collection systems and then to fill in the holes.

APQC welcomes the federal government to use both the PCF and to participate in data collection in the arena of innovation measurement. By incorporating these existing tools into a universal data collection system, the federal government can reduce its costs, leverage current data sets, and more easily uncover common innovation characteristics that lead to success.

The government can reduce costs by using innovation measures that APQC has already established and maintains with the help of business leaders. Not only have the measures been established but a data collection tool is in place. The government can save money by adopting a pre-existing data collection system that has industry buy-in.

The government could combine OSBC innovation measurement data with existing official statistical data to better measure innovation. OSBC data has been submitted by small companies, large international organizations, and from a wide variety of industries around the globe. The OSBC methodology includes a rigorous statistical validation process, scrubbing data before it enters the database.

APQC would like to explore ways to link organization-level OSBC data with that of federal agencies to quickly establish a richer understanding of innovation drivers and their link to success. As this will create common measures, federal agencies will be able to maintain their own data and still understand what is happening across all agencies.

Closing

The measures established to differentiate innovative from non-innovative organizations have been designed in a collaborative environment and adopted by a wide audience. They are relevant across enterprises of all sizes and all types of industries and geographies. They are already used to identify performance gaps and to link innovation drivers and enablers.

By adopting these standard measurements, the federal government will be able close the holes that currently exist. And the Dept. of Commerce will be able to use the data to quickly compare the innovativeness of the USA to that of the world. With that knowledge the Dept. of Commerce will be able to guide policy makers to make decisions based on hard facts. The Dept. of Commerce will also be able to use the data to change their own policies and procedures in a way that positively influences business behavior.

APQC hopes that the committee will consider adopting currently established measures and an existing data collection system to speed up improvements in measuring innovation for the nation. We invite all organizations to participate in the research at no charge.

Addendums

- 1. Innovation Metrics – Initial Measures Tested**
- 2. Innovation Metrics – Calculated in Current Data Collection**
- 3. About APQC and the Open Standards Research**

1. Innovation Metrics - Initial Measures Tested

The following measures were tested as part of the initial research phase to document innovation measures from the pilot survey with 120 organizations.

For each **product/service** measure below, please rate the degree to which it impacts decision making and accurately measures innovation in your organization.

- Percentage of revenue/sales/gross margin from new products/services
- Return on investment for new products/services (including operational impacts)
- Payback period for new products/services (including operational impacts)
- Percentage of new products/services that achieve initial business objectives over a stated timeframe (e.g., three years)
- Percentage of sales from patent-protected products/services
- Number of patents
- Time to market for new products/services
- Time to profitability for new products/services
- Percentage of new products/services jointly developed with outside organizations
- Customer satisfaction with product/service features (in general, not just for new products/services)
- Number of new product/service ideas submitted per employee
- Number of ideas generated per year (any source)
- Percentage of new product/service ideas dropped during vetting process
- Number of new product/service ideas that pass a vetting process and enter the design phase, normalized by employees
- Growth rate in share of key customers' purchases
- Growth rate in number of customers
- Percentage of products/services making up 80 percent of sales volume
- Ratio of fastest-turning product/service sales to slowest-turning product/service sales

For each **business model** measure below, please rate the degree to which it impacts decision making and accurately measures innovation in your organization.

- Revenue growth (year to year)
- Profit growth (year to year)
- Percentage of margin growth due to strategic partnerships/alliances
- Number of partnerships
- Number of joint ventures
- Percentage of business components or processes outsourced
- Number of sales channels used
- Number of new sales channels created in past five years (can include channels previously used by other industries but new to this industry)
- Average time to act on an identified business exposure or opportunity

For each **operations measures** measure below, please rate the degree to which it impacts decision making and accurately measures innovation in your organization.

- SG&A cost as a percentage of revenue
- Cost of goods sold as a percentage of revenue
- On-time delivery
- Order fulfillment cycle time
- Perfect order completion

- Inventory turn rate
- Customer retention
- Customer satisfaction with order taking, scheduling, and delivery
- Warranty expenses as a percentage of revenue
- Employee productivity (revenue per FTE)
- Cost reduction

For each **enabler** measure below, please rate the degree to which it impacts decision making and accurately measures innovation in your organization.

- R&D spend as a percentage of revenue
- Capital expenditures
- Use of cross-functional teams
- Employee satisfaction

2. Innovation Metrics – Calculated in Current Data Collection

The following chart list the standard measures and computed performance ratios that APQC captures for Innovation for its benchmark database. These measures include three dimensions of innovation (products/services, operational, and business model) as well as innovation enablers, or capacity for innovation:

- Products/Services: applying innovation to products, services, or go-to market activities
- Operational: innovation that improves the effectiveness and efficiency of core processes and operations
- Business model: innovation in the structure and/or financial model of the organization. This innovation combines new strategy, processes, and organizations to create entirely new ways of doing business. This includes business relationships such as joint ventures and partnerships with suppliers, customers, or competitors.
- Innovation enablers: the culture, tools, and structures that create an environment where innovation thrives.

Metric Summary (also known as the metric's name)

Total R&D cost as a percentage of revenue (current reporting period)
Total R&D cost per employee (current reporting period)
Total R&D cost per \$1,000 revenue (current reporting period)
Total R&D cost as a percentage of revenue (three reporting periods ago)
Total R&D cost per \$1,000 revenue (three reporting periods ago)
Average time to market for new products/ services in days
Average time to profitability/ payback for new products/ services in months
Average days in inventory
Percentage of current reporting period revenue from new products
Number of new businesses launched in past three reporting periods per \$1 billion revenue in the current reporting period
Number of new businesses launched in the past three reporting periods per \$100 million R&D spend for the three reporting periods ago
e-Commerce fulfillment channel revenue as a percentage of total annual revenue for current reporting period
Direct sales force fulfillment channel revenue as a percentage of total annual revenue for current

reporting period
Indirect fulfillment channels revenue as a percentage of total annual revenue for current reporting period
e-Commerce fulfillment channel revenue as a percentage of total annual revenue for three reporting periods ago
Direct sales force fulfillment channel revenue as a percentage of total annual revenue (three reporting periods ago)
Indirect fulfillment channels revenue as a percentage of total annual revenue (three reporting periods ago)
Percentage revenue growth over past three reporting periods
Percentage growth in R&D costs over past three reporting periods
Percentage growth in EBITDA over past three reporting periods
Customer retention rate
Percentage product/ service sales orders delivered on time (current reporting period)
Percentage product/ service sales orders delivered on time (three reporting periods ago)
Fixed assets utilization rate
Compounded annual growth rate in EBITDA over the past three reporting periods
Compounded annual growth rate in R&D costs over the past three reporting periods
Compounded annual growth rate of revenue generated by the business entity over the past three reporting periods
Percentage business ideas attributed to external sources
Percentage business ideas attributed to internal sources
Percentage of external sourced ideation attributed to competitors
Percentage of external sourced ideation attributed to suppliers
Percentage of external sourced ideation attributed to partners
Percentage of external sourced ideation attributed to clients/ customers
Percentage of external sourced ideation attributed to consultants
Percentage of external sourced ideation attributed to other
Percentage of innovation spend into enhancements to existing products /processes / business models
Percentage of innovation spend into major extensions to products/processes/business models
Percentage of innovation spend into new or white space opportunities (new category of products / processes / business models)
Percentage of innovation spend into other
Percentage of staff tasked with achieving at least one innovation goal
EBITDA margin (current reporting period)
Revenue per employee (current reporting period)
Total R&D cost per employee in the business entity (three reporting periods ago)

3. About APQC and the Open Standards Research

A global resource for process and performance improvement, APQC helps organizations build better ways to work, adapt to change, and succeed in the marketplace. APQC discovers improvement methods, identifies benchmarks and best practices, disseminates findings, and connects individuals. The member-based nonprofit serves more than 500 organizations in all sectors of business, education, and government worldwide.

Since its founding in 1977 by C. Jackson Grayson, APQC had a long-standing reputation for excellence, process orientation, neutrality, and innovation: APQC founded the

Malcom Baldrige National Quality Award, was among the first to promote Japanese quality systems to the US and led a White House cabinet tour to Japan, and is a world leader in knowledge management. In 1991, with the help of 20 leading firms, APQC had created the Process Classification FrameworkSM (PCF), a free and open taxonomy of enterprise processes that became the standard around the world. APQC's updated PCF was the natural starting point for building common measures and collecting data around processes. In 2004, APQC launched the [Open Standards Benchmarking Collaborative](#)SM (OSBC) research worldwide to create the first common database of process definitions, surveys, and measures to enable organizations to benchmark their performance across the organization.

The OSBC offers benefits to organizations by using a standard, open system that offers:

- **Data availability.** Rather than spending precious time and resources inventing measures, then searching for comparable data and benchmarks (which can take weeks or months), organizations can launch immediately into conducting a gap analysis and estimating the business case for change.
- **The drivers of exceptional performance emerge from the data.** The OSBC databases not only include productivity, cost, quality and cycle time data, they also contain information about the potential best practices and drivers of performance. For every process, the research includes questions about the business model used (e.g., in-sourced/outourced; centralized/decentralized/hybrid), the degree and type of technology enablement, staffing models, and many other factors germane to the process under study.
- **The size of the database inspires confidence in the metrics.** With a large database built on standard definitions and measures, it is possible to "wash out" unreliable or inconsistent data. The OSBC methodology includes a rigorous statistical and expert validation process, scrubbing the data before it enters the database.
- **The data comes from a trusted third-party source.** APQC has no stake in the outcomes of a business case analysis.
- **Deeper peer group analyses are possible.** As the OSBC database grows and APQC has support to target data from key industries and regions, it is possible to provide participants with detailed comparisons with peers in the same industry or region and of similar size.

Contact:

Additional metric analysis, results, discussion or references are available.

Marisa Brown
Innovation and R&D Program Manager
APQC
Phone: 713-685-4655
E-mail: mbrown@apqc.org
Web: www.apqc.org

Paige Dawson
Communications Lead
APQC
214-744-6188
pdawson@apqc.org
www.apqc.org